Olin

OCEAN NETWORK EMERGENCY PHONE 1-800-OLIN 911

THIS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD,29 CFR 1910.1200.THIS PRODUCT MAY BE CONSIDERED TO BE A HAZARDOUS CHEMICAL UNDER THAT STANDARD.(REFER TO THE OSHA CLASSIFICATION IN SEC.I.)THIS INFORMATION IS REQUIRED TO BE DISCLOSED FOR SAFETY IN THE WORKPLACE.THE EXPOSURE TO THE COMMUNITY,IF ANY,IS QUITE DIFFERENT.

I. PRODUCT IDENTIFICATION

REVISION NO : 2
REVISION DATE : 2/22/96
PRODUCT CODE : CPE00136#
FILE NUMBER : CPE00009.0235
PRODUCT NAME: PACE(R) DISPOSABLE FLOATING CHLORINATOR

SYNONYMS: Trichloroisocyanuric Acid, TCCA, Trichlor
CHEMICAL FAMILY: Chloroisocyanurates
FORMULA: $(ClNCO)_3$
DESCRIPTION: Swimming pool sanitizer
OSHA HAZARD CLASSIFICATION: Oxidizer, corrosive, skin and eye hazard, lung toxin, toxic by ingestion and inhalation.

II. COMPONENT DATA

PRODUCT COMPOSITION
CAS or CHEMICAL NAME: Trichloro-s-triazinetrione
CAS NUMBER: 87-90-1
PERCENTAGE RANGE: 96-100
HAZARDOUS PER 29 CFR 1910.1200: Yes
EXPOSURE STANDARDS: None Established

CAS or CHEMICAL NAME: Dichloroisocyanuric acid
CAS NUMBER: 2782-57-2
PERCENTAGE RANGE: 0-4
HAZARDOUS PER 29 CFR 1910.1200: Yes
EXPOSURE STANDARDS: None Established

III. PRECAUTIONS FOR SAFE HANDLING AND STORAGE

DO NOT TAKE INTERNALLY. AVOID CONTACT WITH SKIN, EYES AND CLOTHING. UPON CONTACT WITH SKIN OR EYES, WASH OFF WITH WATER.
STORAGE CONDITIONS: Store in a clean dry well ventilated area. Keep away from incompatible chemicals (see below).
DO NOT STORE AT TEMPERATURES ABOVE: 60 Deg.C (140 Deg.F)

PRODUCT STABILITY AND COMPATIBILITY

SHELF LIFE LIMITATIONS: Indefinite. Available chlorine loss can be as little as 0.1% per year at ambient temperatures.

INCOMPATIBLE MATERIALS FOR PACKAGING: Paper, cardboard

INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT: Organic materials, reducing agents, nitrogen containing materials, other oxidizers, acids, bases

IV. PHYSICAL DATA

APPEARANCE: White, granular solid or tablet-form product
FREEZING POINT: Not Applicable
BOILING POINT: Not Applicable
DECOMPOSITION TEMPERATURE: 225 Deg.C (437 Deg.F)
SPECIFIC GRAVITY: > 1 @ 20 Deg.C
BULK DENSITY: Granular-0.89 to 1.1 g/cc; Tablets-1.16 to 1.90 g/cc
pH OF 1% SOLUTION: 2.7-2.9
VAPOR PRESSURE @ 25 DEG.C: Not Available
SOLUBILITY IN WATER: 1.2% @ 25 Deg.C
VOLATILES, PERCENT BY VOLUME: Not Applicable
EVAPORATION RATE: Not Applicable
VAPOR DENSITY: Not Applicable
MOLECULAR WEIGHT: 232.5
ODOR: Sharp, chlorine-like, bleach odor
COEFFICIENT OF OIL/WATER DISTRIBUTION: Not Available

V. PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

PERSONAL PROTECTION FOR ROUTINE USE OF PRODUCT:

RESPIRATORY PROTECTION: Wear a NIOSH/MSHA approved respirator with chlorine cartridges and a dust/mist prefilter if dusts are created.

VENTILATION: Use local exhaust ventilation to minimize dust and chlorine levels where industrial use occurs. Otherwise, ensure good general ventilation.

SKIN AND EYE PROTECTIVE EQUIPMENT: Wear gloves, and chemical safety glasses to avoid skin and eye contact. Where industrial use occurs, chemical goggles or full impermeable suit may be required.

EQUIPMENT SPECIFICATIONS (WHEN APPLICABLE):

RESPIRATOR TYPE: NIOSH/MSHA approved full facepiece respirator with chlorine cartridges and dust/mist prefilters.

PROTECTIVE CLOTHING TYPE (This includes: gloves, boots, apron, protective suit): Neoprene

VI. FIRE AND EXPLOSION HAZARD INFORMATION

FLAMMABILITY DATA:
- FLAMMABLE: No
- COMBUSTIBLE: No
- PYROPHORIC: No
- FLASH POINT: Not Applicable
- AUTOIGNITION TEMPERATURE: Not Applicable
- FLAMMABLE LIMITS AT NORMAL ATMOSPHERIC TEMPERATURE AND PRESSURE (PERCENT VOLUME IN AIR): LEL - Not Applicable UEL - Not Applicable

NFPA RATINGS:
- Health: 2
- Flammability: 0
- Reactivity: 2
- Special Hazard Warning: OXIDIZER

HMIS RATINGS:
- Health: 3
- Flammability: 0
- Reactivity: 2

EXTINGUISHING MEDIA: Not Applicable

FIRE FIGHTING TECHNIQUES AND COMMENTS: Use water to cool containers exposed to fire. On small fires, use water spray or fog. On large fires, use heavy deluge or fog streams. Flooding amounts of water may be required before extinguishment can be accomplished. Do not use dry chemical extinguishers containing ammonia compounds.

VII. REACTIVITY INFORMATION

CONDITIONS UNDER WHICH THIS PRODUCT MAY BE UNSTABLE:
- TEMPERATURES ABOVE: 225 Deg.C (437 Deg.F)
- MECHANICAL SHOCK OR IMPACT: No
- ELECTRICAL (STATIC) DISCHARGE: No
- OTHER: Contact with small amounts of water may result in an exothermic reaction with the liberation of toxic fumes.
- HAZARDOUS POLYMERIZATION: Will Not Occur
- INCOMPATIBLE MATERIALS: Organic materials, oils, grease, sawdust, reducing agents, nitrogen containing compounds, other oxidizers, acids, bases, dry fire extinguishers containing ammonium compounds

HAZARDOUS DECOMPOSITION PRODUCTS: Nitrogen trichloride, chlorine, nitrous oxides, cyanates, carbon monoxide, carbon dioxide
OTHER CONDITIONS TO AVOID: Damp or slightly wet product (will evolve nitrogen trichloride)

SUMMARY OF REACTIVITY:

OXIDIZER:	Yes	ORGANIC PEROXIDE:	No
PYROPHORIC:	No	WATER REACTIVE:	No

VIII. FIRST AID

EYES: Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Call a physician at once.

SKIN: Immediately flush with water for at least 15 minutes. Call a physician. If clothing comes in contact with the product, the clothing should be removed immediately and should be laundered before re-use.

INGESTION: Immediately drink large quantities of water. DO NOT induce vomiting. Call a physician at once. DO NOT give anything by mouth if the person is unconscious or if having convulsions.

INHALATION: If person experiences nausea, headache or dizziness, person should stop work immediately and move to fresh air until these symptoms disappear. If breathing is difficult, administer oxygen, keep the person warm and at rest. Call a physician. In the event that an individual inhales enough vapor to lose consciousness, person should be moved to fresh air at once and a physician should be called immediately. If breathing has stopped, artificial respiration should be given immediately. In all cases, ensure adequate ventilation and provide respiratory protection before the person returns to work.

IX. TOXICOLOGY AND HEALTH INFORMATION

ROUTES OF ABSORPTION
Inhalation, skin and eye contact, ingestion

WARNING STATEMENTS AND WARNING PROPERTIES
HARMFUL IF SWALLOWED. HARMFUL IF INHALED. CAUSES SKIN, EYE, DIGESTIVE TRACT AND RESPIRATORY TRACT BURNS.

HUMAN THRESHOLD RESPONSE DATA

ODOR THRESHOLD: No Data

IRRITATION THRESHOLD: No Data

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH: No IDLH concentrations has been established for this product. TCCA has the potential to be immediately dangerous to life and health.

SIGNS, SYMPTOMS, AND EFFECTS OF EXPOSURE

INHALATION

ACUTE:

Inhalation of this material is irritating to the nose, mouth, throat and lungs. It may also cause burns to the respiratory tract with the production of lung edema which can result in shortness of breath, wheezing, choking, chest pain, and impairment of lung function. Inhalation of high concentrations can result in permanent lung damage.

CHRONIC:

Chronic (repeated) inhalation exposure may cause impairment of lung function and permanent lung damage.

SKIN

ACUTE:

Dermal exposure can cause severe irritation and/or burns characterized by redness, swelling and scab formation. Prolonged skin exposure may cause permanent damage.

CHRONIC:

Repeated skin exposure may cause tissue destruction due to the corrosive nature of the product.

EYE

Severe irritation and/or burns can occur following eye exposure. Contact may cause impairment of vision and corneal damage.

INGESTION

ACUTE:

Irritation and/or burns can occur to the gastrointestinal tract, including the stomach and intestines, characterized by nausea, vomiting, diarrhea, abdominal pain, bleeding and/or tissue ulceration. Ingestion causes severe damage to the gastrointestinal tract with the potential to cause perforation.

CHRONIC:

There are no known or reported effects from chronic exposure. Chronic ingestion of significant amounts of this product is unlikely because of its acute corrosive action.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Asthma, respiratory and cardiovascular disease

INTERACTIONS WITH OTHER CHEMICALS WHICH ENHANCE TOXICITY

None known or reported

ANIMAL TOXICOLOGY

ACUTE TOXICITY

INHALATION LC 50: Approximately 0.68 mg/l (4 hr., rat - nose only), based on similar compound

ORAL LD 50: 490 mg/kg (rat)

DERMAL LD 50: > 2 g/kg (rabbit)

IRRITATION: Causes burns to eyes and skin.

ACUTE TARGET ORGAN TOXICITY:

This product is corrosive to all tissues contacted and upon inhalation, may cause irritation to mucous membranes and respiratory tract.

CHRONIC TARGET ORGAN TOXICITY

There are no known or reported effects from repeated exposure. Toxicological investigation indicates it does not produce significant effects from chronic exposure.

REPRODUCTIVE AND DEVELOPMENTAL TOXICITY

There are no known or reported effects on reproductive function or fetal development. Toxicological investigation indicates it does not effect reproductive function or fetal development.

CARCINOGENICITY

This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP, or EPA.

MUTAGENICITY

Trichloroisocyanuric acid has been tested in microbial mutagenicity assays. The microbial mutagenicity assays employed five Salmonella strains and one E. coli strain with and without mammalian microsomal activation. No mutagenic effects were observed in these assays.

AQUATIC TOXICITY
LC 50: Rainbow trout (96 hrs. exposure) - 0.32 ppm
Bluegill sunfish (96 hrs. exposure) - 0.30 ppm
Daphnia magna (48 hrs. exposure) - 0.21 mg/l
Mallard duck (8-day dietary exposure) - > 10,000 ppm
Mallard duck (Oral LD 50) - 1.6 g/kg
Bobwhite quail (8-day dietary exposure) - 7422 ppm

X. TRANSPORTATION INFORMATION

THIS MATERIAL IS REGULATED AS A DOT HAZARDOUS MATERIAL.

DOT DESCRIPTION FROM THE HAZARDOUS MATERIALS TABLE 49 CFR 172.101:
LAND: TRICHLOROISOCYANURIC ACID DRY, 5.1, UN 2468, PGII, ERG No. 45
WATER: TRICHLOROISOCYANURIC ACID DRY, 5.1, UN 2468, PGII,
IMDG Pg.No. 5190, EmS No. 5.1-05
AIR: SAME AS LAND

HAZARD LABEL/PLACARD: OXIDIZER
REPORTABLE QUANTITY: Not Applicable (Per 49 CFR 172.101, Appendix)
EMERGENCY GUIDE NO: 45

XI. SPILL AND LEAKAGE PROCEDURES

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 800-424-9300.

REPORTABLE QUANTITY: Not Applicable (Per 40 CFR 302.4)

SPILL MITIGATION PROCEDURES:
Hazardous concentrations in air may be found in local spill area and immediately downwind. If spill material is still dry, do not put water directly on this product as a gas evolution may occur. If material is wet, contact the OCEAN net work for proper stabilization procedures.

AIR RELEASE: Vapors may be suppressed by the use of a water fog.
WATER RELEASE: This material is heavier than water. This material is soluble in water. Stop flow of material into water source as soon as possible. Begin monitoring for available chlorine and pH immediately.

LAND SPILL: Do not contaminate spill material with any organic materials, ammonia, ammonium salts or urea. Clean up all spill material with clean, dry dedicated equipment and place in a clean dry container.

SPILL RESIDUES:
Dispose of per guidelines under Section XII, WASTE DISPOSAL.

This material may be neutralized for disposal; you are requested to contact OCEAN at 800-OLIN-911 before beginning any such operation.

PERSONAL PROTECTION FOR EMERGENCY SPILL AND FIRE-FIGHTING SITUATIONS:
Response to this material requires the use of a full encapsulated suit and a NIOSH/MSHA approved positive pressure supplied air respirator.

Compatible materials for response to this material are neoprene.

Protection concerns must also address the following: If this material becomes damp/wet or contaminated in a container the formation of nitrogen trichloride gas may occur and an explosive condition may exist.

XII. WASTE DISPOSAL

If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste number: D001.
If this product becomes a waste, it will be a hazardous waste which is subject to the Land Disposal Restrictions under 40 CFR 268 and must be managed accordingly.
As a hazardous solid waste, it must be disposed of in accordance with local, state, and federal regulations in a permitted hazardous waste treatment, storage and disposal facility by treatment.

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

XIII. ADDITIONAL REGULATORY STATUS INFORMATION

TOXIC SUBSTANCES CONTROL ACT:
This substance is listed on the Toxic Substances Control Act Inventory.

SUPERFUND AMENDMENT AND REAUTHORIZATION ACT TITLE III:
HAZARD CATEGORIES, PER 40 CFR 370.2:
HEALTH:
Immediate (Acute)
PHYSICAL:
Fire and Reactivity

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APP.A:
EXTREMELY HAZARDOUS SUBSTANCE - THRESHOLD PLANNING QUANTITY:
None Established
SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45:
None Established

XIV. ADDITIONAL INFORMATION

MSDS REVISION STATUS: Transportation Information, Personal Protective Equipment and References updated. (3)

XV. MAJOR REFERENCES

1. Hammond, B., et al., A Review of Toxicology Studies on Cyanurate and its Chlorinated Derivatives, Environmental Health Perspectives, Vol. 69, pp. 287-292, 1986.
2. 28-Day Dosing Study in Rats (Extended to a 59-Day Dosing Study), s-Triazinetriol, Monosodium Slat; Sodium Dichloro-s-triaizinetrione dihydrate and Trichloro-s-triazinetrione, International Research and Development Corporation, Mattawan, MI, Study No. 167-150, September 12, 1980.
3. Eight-Day Dietary LC 50 - Bobwhite Quail, ACL 85, Final Report, Truslow Farms Inc., Wildlife Research Division, Sterling, VA, Project No. 139-112, July 15, 1975.
4. Eight-Day Dietary LC 50 - Mallard Duck, ACL 85, Final Report, Truslow Farms Inc., Wildlife Research Division, Sterling, VA, Project No. 139-113, July 15, 1975.
5. Acute Oral LD 50 - Mallard Duck, ACL-85, Final Report, Truslow Farms Inc., Wildlife International Ltd., Chestertown, MD, Project No. 139-120, October 18, 1976.
6. Acute Toxicity of ACL-85 to Daphnia magna, Bioassay Report, E G & G, Bionomics, Aquatic Toxicology Laboratory, Wareham, MA, November, 1976.

7. Four-Day Static Aquatic Toxicity Studies with ACL-85, LOT No. 5/8/75 GDN in Rainbow Trout and Bluegills, Industrial BIO-TEST Laboratories, Inc., Northbrook, IL, BTL No. 75-39, IBT No. 621-07227, September 5, 1975.
8. Acute Toxicity Studies with Trichloroisocyanuric acid, Industrial BIO-TEST Laboratories, Inc., Northbrook, IL, P.O. No. RC-34355, IBT No. 8530-08303, April 20, 1976.
9. Shimizu, H. et al., The Results of Microbial Mutation Test for Forty Three Inustrial Chemicals, Japan. J. Ind. Health, Vol. 27, 400-419, 1985.
10. Acute Toxicity Studies with Trichloroisocyanuric Acid (Olin CDB 70): Oral LD50 in Rats, Dermal LD50 in Rabbits, Dermal Irritation in Rabbits, Primary Eye Irritation/Corrosion in Rabbits, Dermal Sensitization in Guinea Pigs. MB Research Laboratories, Inc., Spinnerstown, PA., July 1994.
11. Nose-Only Acute Inhalation Toxicity Evaluation on Trichloroisocyanurate (Olin CDB 70) in Rats. IRDC Laboratories, Mattawan, MI, July 1994.

THE INFORMATION IN THIS MATERIAL SAFETY DATA SHEET SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. OLIN BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION, BUT MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MATERIAL SAFETY DATA SHEET IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT OLIN AT THE PHONE NUMBER LISTED BELOW TO MAKE CERTAIN THAT THIS SHEET IS CURRENT.

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